REMARKS

Claims 1 and 3-35 are currently pending in the present application.

In the office action mailed January 12, 2004 (the "Office Action"), claims 1, 3, 10, 20, 21, 25-28, and 33 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,230,039 to Grossman *et al.* (the "Grossman patent"). Claims 4-9, 11-19, 22-24, 29-32, 34, and 35 were rejected under 35 U.S.C. 103(a) as being unpatentable over the Grossman patent in view of U.S. Patent No. 5,230,039 to Dye *et al.* (the "Dye patent").

Claims 1, 10, 21, and 26 have been amended to more clearly present the claims to the Examiner for examination. It will be apparent from the amendments, and the comments below, that the amendments were not made based on the art rejections by the Examiner. Generally, the amendments make explicit what is implicit in the claim, add language that is inherent in the unamended claim, or merely redefine a claim term that is previously apparent from the description in the specification. Consequently, the amendments should not be construed as being "narrowing amendments," because these amendments were not made for a substantial reason related to patentability.

The responses to office actions previously filed on April 17, 2003 (the "First Response") and September 9, 2003 (the "Second Response") outline in detail the distinction between the claimed embodiments of the present invention and the Grossman patent. Additionally, the First and Second Responses further outline in detail the reasons that the Dye patent fail to make up for the deficiencies of the Grossman patent. The remainder of this response will address the flaws in the Examiner's arguments in maintaining the rejection of the claims, as provided in the Office Action.

The Grossman patent fails to anticipate claim 1 because it fails to recite the combination of limitations recited by claim 1. The Examiner has argued that the "texture values for the borders of the texture regions" described in the Grossman patent are analogous to the signed texture coordinate values that are concurrently calculated for each of the predefined input ranges. *See* the Office Action at page 3. However, this argument fails because the texture values for the borders are not calculated. They are merely set at zero for the zero border and the maximum binary value for the positive border. *See* col. 11, line 59-col. 12, line 12. The texture values of zero and the maximum binary value for the borders of the texture regions do not

change, regardless of the input texture coordinate value or the texture size. In contrast, claim 1 recites that the respective signed texture coordinate values for each of the predefined input ranges are calculated from the input texture coordinate value and the size of the texture map.

The Examiner's argument that Grossman teaches "selecting from the calculated texture coordinate values and the input texture coordinate value based on the sign of the input texture coordinate and the signs of the calculated texture coordinate values (e.g., the sign bits of the border values of the texture map or the masked input coordinates or the interpolated input coordinates or the manipulated texture coordinates)" is also incorrect. *See* the Office Action at page 4.

One reason the Examiner's argument fails is because many of the "calculated texture coordinate values" as characterized by the Examiner, namely, "the border values of the texture map or the masked input coordinate or the interpolated input coordinate or the manipulated texture coordinates," *see* the Office Action at page 3, are not calculated texture coordinates from which the output texture coordinate is selected. For example, the "masked input coordinate" appears to be a value resulting from the application of a mask stored in a mask register 430, 431 to an outside map factor value 307 that is one field of an input coordinate 301. See Figure 3a and col. 9, lines 33-39. The application of the mask to the outside map factor value is shown in Figure 5a as steps 501-503. *See* Figure 5a and col. 10, line 65-col. 10, line 7. The resulting value, which the Examiner refers to as the "masked input coordinate," is compared at step 505 to a compare value stored in a comparator register 432, 433. A decision is made at step 510 based on the comparison to suppress the drawing of the textured pixel (steps 508, 509, 522, and 526) or to further determine whether to provide the input coordinate as the output texture coordinate (steps 506, 507, 511, 522, and 526) or to clamp the texture coordinate value (steps 506, 507, 512), and if so, to which border value to clamp (520, 523, 524 or 520, 525, 521). At no time is the "masked input coordinate" value one of the values that can be selected as the output texture coordinate. It is merely a value that is compared with the compare value to determine whether the *input coordinate* is within a particular s,t coordinate range that is enabled.

With respect to the term "interpolated input coordinate," which is not a term that is found in the Grossman patent, it appears to refer to a coordinate value that is provided to a span processor and is not a value that is calculated by the span processor. *See* col. 8, lines 49-50

and col. 9, lines 5-9. The term "manipulated texture coordinates" appears to generally refer to the texture coordinates that are *output* by the span processor. *See* col. 2, lines 28-31; col. 9, lines 54-57; col. 10, lines 42-47. Nowhere in the Grossman patent is there disclosure of *selecting* an interpolated input coordinate or a manipulated texture coordinate to be provided as an output texture coordinate. The Examiner's characterization of these terms is inaccurate, and neither one is concurrently calculated for selection as an output texture coordinate based on their sign values.

The Examiner further states that the border values of the texture map or the masked input coordinate or the interpolated input coordinate or the manipulated texture coordinate each have a sign bit associated with them. *See* the Office Action at page 3.

With respect to the border values of the texture map, the value at the zero border and the value at the positive border are not signed values. As described in the Grossman patent, these values are merely the fractional values that are provided to the image engine if a clamping operation is performed. The zero value is neither positive or negative, and the maximum value at the positive border will always be positive. There is no need for a signed border value. Which one of the border values is provided for further processing by the image engine depends on the sign of only the input coordinate. *See* Figure 5b and col. 11, line 52-col. 12, line 12. As shown in Figure 5b, selection of the zero border value at step 521 or the positive border value at step 524 is made at step 520 based on whether the sign bit of the input coordinate indicates a positive value (step 523) or a negative value (step 525). The selected value is then provided at step 522 to an image engine for further processing. Thus, assuming for the moment that the border values are analogous to the calculated texture coordinate values, as argued by the Examiner, the Grossman patent clearly does not disclose selecting an output texture coordinate from the calculated texture coordinates (*i.e.*, the border values) and the input texture coordinate based on the sign of the input texture coordinate value *and the signs* of the calculated texture coordinates, as recited in claim 1.

With respect to the "masked input coordinate," there is no discussion as it having a sign bit. It would be unlikely that there would be a sign bit associated with this value since neither the outside map factor 307 or the mask value that is applied to the outside map factor 307 are described as having a sign bit and the value is compared with an unsigned compare value stored in a comparator register. Admittedly, the input coordinate value 301 has a sign bit 308.

However, the outside map factor 307, which is merely *part* of the input coordinate value 301, does not have a sign bit. As for the "interpolated input coordinate," since the term is not used in the Grossman patent, there is no description of it being a signed value.

In summary, the Examiner's arguments that the border values of the texture map, the masked input coordinate, the interpolated input coordinate, or the manipulated texture coordinates are analogous to concurrently calculated signed texture coordinate values, as recited in claim 1, is not accurate. These values are not concurrently calculated, are not a value from which an output texture coordinate is selected, and/or are not a signed value. Consequently, the Grossman patent fails to disclose the combination of limitations recited by claim 1.

Claims 10, 21, and 26 are similarly patentably distinct from the Grossman patent because the Grossman patent fails to disclose the combination of limitations recited by the respective claims. As previously discussed with respect to claim 1, the Examiner has mischaracterized the teachings of the Grossman patent in order to maintain the rejection of the claims. However, reviewing the Grossman patent reveals that the system described therein does not anticipate the claimed invention. As provided in the Manual of Patent Examining Procedures (MPEP) at section 2131, to anticipate a claim, the reference must teach every element of the claim. Several deficiencies in the Grossman patent have been pointed out, and despite the Examiner's insistence to the contrary, the Grossman patent simply does not disclose the combination of limitations recited by the claims.

For the foregoing reasons, claims 1, 10, 21, and 26 are patentably distinct from the Grossman patent. Claim 3, which depends from claim 1, claim 20, which depends from claim 10, claim 25, which depends from claim 21, and claims 28 and 33, which depend from claim 26, are similarly patentably distinct based on their dependency from a respective allowable base claim. Therefore, the rejection of claims 1, 3, 10, 20, 21, 25-28, and 33 under 35 U.S.C. 102(b) should be withdrawn.

Claims 4-9, 11-19, 22-24, 29-32, 34, and 35 were rejected under 35 U.S.C. 103(a) as being unpatentable over the Grossman patent in view of the Dye patent. These claims are patentable because (1) the Dye patent fails to teach the subject matter described by the Examiner, (2) the teachings of the Dye patent, as characterized by the Examiner, fail to make up for the

deficiencies of the Grossman patent, and/or finally, (3) based on their dependency from an allowable base claim.

The Examiner's characterization of the Dye patent as teaching the specific formula for calculating the texture coordinates and the specific way of selecting the corresponding texture coordinates, citing to columns 25-36 of the Dye patent, is incorrect. The material cited by the Examiner is essentially Appendix A of the Dye patent, which is an "exemplary software listing." *See* col. 17, lines 24-25. The software program of Appendix A is described at col. 17, line 26-col. 26, line 32. Generally, the software program describes a method for interpolating a texel value (*i.e.*, the color of a texel for a corresponding pixel) based on the location of the interpolated texel relative to the four nearest texels, as well as the color of the four texels. Rather than using one interpolating method, for example, either point sampling or bilinear interpolation, the texel interpolation method of the Dye patent performs different interpolation methods depending on the location of the interpolated texel within different regions of the rectangular region defined by the four nearest texels. *See* col. 3, lines 29-40, col. 4, line 66-col. 6, line 23, and Figure 2. Three different interpolation methods are described as being used in the Dye patent: point sampling, two-texel averaging, and four-texel averaging. *See id.*

Generally, point sampling is applied when the interpolated texel is located proximate to one of the four nearest texels. With reference to Figure 2, point sampling is applied when the interpolated texel is located in regions I, III, VII, and IX. *See* col. 5, line 64-col. 6, line 7. Two-texel averaging is applied when the interpolated texel is located proximate to two of the four nearest texels, which corresponds to regions II, IV, VI, and VII in Figure 2. *See* col. 6, lines 8-23. Finally, four-texel averaging is applied when the interpolated texel is located roughly in the middle of the four nearest texels, which corresponds to region V in Figure 2. *See* col. 6, lines 2-7. As described in the Dye patent, the software program of Appendix A is broken down into sections I and II. *See* col. 17, lines 27-32. Section I provides the method for determining which region the interpolated texel is located and section II provides the method for implementing the particular interpolation method based on the result from section I.

In reviewing the software program of Appendix A, and the description at col. 17, line 33-col. 26, line 32, nothing remotely similar to the calculation of texture coordinates or the selection of the corresponding texture coordinate recited in claims 4-9, 11-19, 22-24, 29-32, or

34 and 35 are disclosed. One simple reason is that the methods described in the Dye patent are directed to calculating a *texel value* (*i.e.*, color) and not a *texture coordinate*. As previously discussed, based on the location (*i.e.*, texture coordinate) of the interpolated texel, *a texel value* is calculated based on the proximity and color of the four nearest texels. The method of the Dye patent does not calculate a *texture coordinate*, but instead takes a texture coordinate as an input, and calculates a *texel value*. The "calculation methods" described in the Dye patent are directed to (1) point sampling, (2) two-texel averaging, and (3) four-texel averaging. These different methods for calculating color values for texels are completely unrelated to the calculation of texture coordinate values recited in the aforementioned claims, which are based on the input coordinate value and the size of the texture map.

Besides the fundamental difference between the values calculated by embodiments of the present invention and the Dye patent, the particular ranges disclosed in the Dye patent bear no relationship to the ranges recited in claims 4-9, 11-19, 22-24, 29-32, or 34 and 35. The ranges recited in the aforementioned claims are based on the input texture coordinate value and the size of the texture map. The ranges defined in the Dye patent are in relation to the rectangular region defined by *four texels*. The size of the texture map in which the four texels are located is irrelevant to the ranges defined in the Dye patent. As previously discussed, the ranges defined in the Dye patent are for determining which of three different interpolation methods are applied based on the location of the interpolated texel relative to the four nearest texels. The actual size of the texture map does not matter as long as the region defined by the four texels is partitioned into the nine regions shown in Figure 2, and described at col. 4, line 66-col. 6, line 23.

Even if the Examiner's characterization of the Dye patent is considered to be accurate, however, it fails to make up for the deficiencies of the Grossman patent previously described with respect to claims 1, 3, 10, 20, 21, 25-28, and 33. The "specific formula for calculating the texture coordinates and the specific way of selecting the corresponding texture coordinates," the Dye patent purportedly teaches does not change the fact that the Grossman patent fails to at least disclose the concurrent calculation of signed texture coordinate values for each of the predefined input ranges from an input texture coordinate and the size of a texture map, and selecting from the input texture coordinate and the calculated signed texture coordinate

values based on the sign of the input texture coordinate and the signs of the calculated texture coordinate values.

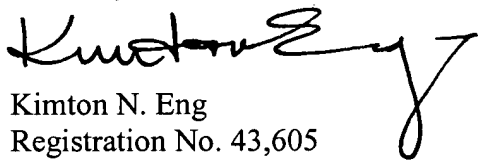
Additionally, claims 4-9, which depend from claim 1, claims 11-19, which depend from claim 10, claims 22-24, which depend from claim 21, and claims 29-32, 34 and 35, which depend from claim 26, are patentable based on their dependency from a respective allowable base claim. That is, each of the dependent claims further narrows the scope of the claim from which it depends, and consequently, if a claim is dependent from an allowable base claim, the dependent claim is also allowable.

For the foregoing reasons, the claims 4-9, 11-19, 22-24, 29-32, or 34 and 35 are patentable over the Grossman patent in view of the Dye patent, and therefore, the rejection of claims 4-9, 11-19, 22-24, 29-32, or 34 and 35 under 35 U.S.C. 103(a) should be withdrawn.

All of the claims pending in the present application are in condition for allowance. Favorable consideration and a timely Notice of Allowance are earnestly solicited.

Respectfully submitted,

DORSEY & WHITNEY LLP



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